

a solution supply device independent from said guide probe, for supplying a solution containing a coloring agent and a volatile solvent to the fault location until said solution touches a tip of said probe needle; and

a heating unit for evaporating the volatile solvent to form a mark consisting of the coloring agent surrounding the fault location.

### REMARKS

1. Claims 1 - 20 are pending in the application. Claims 1, 7, and 13 have been amended. It is believed that no new matter has been added by these amendments. Support for these amendments can be found in the specification, claims and drawings of the application as originally filed.

2. The Official Action rejected claims 1 - 20 under 35 USC §102(b) stating that the claims are "anticipated by B.G. Casner et al (US 3572400)." This rejection is respectfully traversed for the following reasons.

For a rejection of claims under 35 U.S.C. §102 to be proper, each and every element of the claimed invention must be described in the exact same way and function in the exact same way as disclosed in the cited reference. There are significant differences between the present invention and the Casner et al. patent.

As to claims 1, 7, and 13, the Official Action states that Casner et al., disclose all the components of the claims of the present application. As a direct comparison and contrast:

The guide needle 11 of the present invention is not hollow , can be used as the testing probe (page 3, lines 7 - 10), and is separate from the solution supply device 13.

The pen (22) and applicator tip (23) of Casner et al., are hollow (37) for the purpose of delivering the magnetic fluid (38)

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The solution supply device 13 of the present invention is an independent, hollow tube for delivering volatile, ink solutions 30.

Casner et al., delivery the magnetic fluid (38) through the center of the pen (22); (i.e., the "needle" and "solution supply device" being one in the same).

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The present invention utilizes and exploits the surface tension of the ink to be attracted to the needle. Page 4, last paragraph – page 5, 1<sup>st</sup> paragraph.

Casner et al., specifically avoid surface tension in the applied magnetic fluid:

The drop is applied by “breaking the surface tension (column 6, lines 53-62);

Flowing of the magnetic liquid onto the applicator tip (*cf*, “needle”) is specifically avoided (column 7, lines 52-56)

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The present invention uses an irradiating device **15** comprising a light source **16** that generates visible light to provide spot-irradiation to dry the ink.

Casner et al., make no mention of any device or method for the application of drying assistance - heat , light or otherwise.

The present invention marks with a volatile, coloring agent solution (“ink”)

Casner et al., apply a suspension of “magnetic particles in a substantially nonvolatile carrier liquid” (column 3, lines 35-36).

The Official Action cites column 2, lines 21-26 of Casner et al., for the support of Casner et al., using a volatile ink, however; this citation actually refers to marking with ink but identifies this as the process that Casner et al., are attempting to avoid

The Official Action cites column 2, lines 70-73 to show Casner et al’s disclosure of a volatile solvent when in fact this section states that “it is undesirable to use volatile, quick drying vehicles...”

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The present invention marks just the defective area , not the whole defective “chip”

Casner et al’s, “mark” mark is “made as large as is reasonably practical” ... without causing the fluid to flow over to non-defective wafer areas” (column 7, lines 9-11)

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The present invention marks the defective area for subsequent optical identification for the possible correction of the defect.

Casner et al., apply a magnetic “mark” to simplify the removal of the chip altogether – fixable or not.

As to claims 2, 3, 8, 9, 14, and 15, the Official Action states that Casner et al, disclose the use of ketone, ether and alcohol as the solvent (citing column 2, lines 21-26.) Applicants find no such disclosure or mention of any solvents at the cited location. Casner et al does disclose, however, the preferred use of “non-volatile drying or semidrying oils” column 8, lines 34-57.

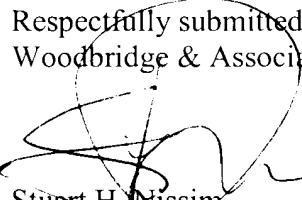
As to claims 4, 5, 10, 11, and 16 – 20, the Official Action states that Casner et al., disclose a heating unit for irradiating the solvent with visible light rays, citing column 2, lines 40 - 50 and making reference to an “oven”. Applicants find no such disclosure or mention of any heating unit, irradiation source or method, or any drying apparatus or method at the cited location or anywhere in the Casner, et al., disclosure.

As to claims 6 and 12, the Official Action states that Casner et al., disclose the guide needle is the probe needle (23). In fact, all throughout the disclosure, Casner et al., distinguish the probe needle (16) from the pen(22) with applicator tip (23). Our needle can also function as a probe (page 3, lines 7 - 10).

The present invention can be easily and effectively distinguished from the disclosure of the Casner et al., patent. Therefore, in view of the many differences between the present invention and the disclosure of Casner et al., and the absence of each and every element of the present invention in the same function and manner, Casner et al., cannot support a §102(b) rejection.

Therefore, in view of the above amendments and remarks, it is believed that claims 1 - 20 are now in condition for allowance and Applicants respectfully request reconsideration of the application, withdrawal of all objections and rejections and that claims 1 – 20 be allowed to issue at an early date.

Respectfully submitted,  
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**Version of Claims with Markings to Show Changes Made**

Claim 1. (amended) A mark forming apparatus comprising:

- a guide needle for forming a mark;
- a positioning mechanism for positioning said guide needle above a fault location of a semiconductor device;
- a solution supply device independent from said guide needle, for supplying a solution containing a coloring agent and a volatile solvent to the fault location until said solution [it] touches a tip of said guide needle; and
- a heating unit for evaporating the volatile solvent to form a mark consisting of the coloring agent surrounding the fault location.

Claim 7. (amended) A mark forming method comprising the steps of:

- positioning a guide needle for forming a mark above a fault location of a semiconductor device;
- supplying a solution containing a coloring agent and a volatile solvent from a means independent from said guide needle, to the fault location until said solution [it] touches a tip of the guide needle; and
- evaporating the volatile solvent to form a mark consisting of the coloring agent surrounding the fault location.

Claim 13. (amended) An analyzing apparatus comprising:

- a probe needle for detecting a fault location of a semiconductor device;
- an observation device for observing and identifying a location of said probe needle;
- a positioning mechanism for positioning said probe needle above the fault location as detected;
- a solution supply device independent from said guide probe, for supplying a solution containing a coloring agent and a volatile solvent to the fault location until said solution [it] touches a tip of said probe needle; and
- a heating unit for evaporating the volatile solvent to form a mark consisting of the coloring agent surrounding the fault location.